IN THE CLAIMS:

Claim 1. (original) A method for representing interconnection of a plurality of elements on a network, the method comprising:

providing a first catalog for a first subset of said elements, and providing a second catalog for a second subset of said elements;

creating a matrix of connection cells formed by an intersection of a pair of elements, wherein a first element of each pair is taken from the first catalog and a second element of each pair is taken from the second catalog; and

forming a connection representation for at least a subset of the pairs.

Claim 2. (original) A method as recited in claim 1, wherein at least one element is a catalog of sub-elements, and the method further comprises the step of including all sub-elements in the matrix.

Claim 3. (original) A method as recited in claim 1, wherein the network is a communications network and at least a subset of the elements includes routers.

Claim 4. (original) A method as recited in claim 1, wherein the network is an IP network and at least a subset of said elements have an IP protocol stack.

Claim 5. (original) A method as recited in claim 1, wherein at least one particular element in the first catalog is the same as a particular element in the second catalog.

Claim 6. (original) A method as recited in claim 1, wherein at least one of the catalogs includes a plurality of sub-catalogs.

Claim 7. (original) A method as recited in claim 1, wherein at least a portion of the network is a computer network.

Claim 8. (original) A method as recited in claim 1, wherein at least a portion of the network is a virtual network.

Claim 9. (original) A method as recited in claim 1, wherein at least a portion of the network is a network implemented using a layer above a physical layer.

Claim 10. (original) A method as recited in claim 1, wherein at least a portion of the network is an overlay network.

Claim 11. (original) A method as recited in claim 10, wherein at least a portion of the overlay network is an IPSec network.

Claim 12. (original) A method as recited in claim 10, wherein at least a portion of the overlay network provides Quality of Service.

Claim 13. (original) A method as recited in claim 10, wherein at least a portion of the overlay network is an MPLS network.

Claim 14. (original) A method as recited in claim 1, wherein the network includes VLANs.

Claim 15. (original) A method as recited in claim 1, further comprising the step of configuring at least a portion of the network employing the representation.

Claim 16. (original) A method as recited in claim 1, wherein at least a portion of one catalog is formed using combinatorial operations upon elements of other catalogs.

Claim 17. (original) A method as recited in claim 1, further comprising associating at least one task with at least one connection.

Claim 18. (original) A method as recited in claim 17, further comprising triggering at least said one task as a result of a change of a state of said one connection.

Claim 19. (original) A method as recited in claim 1, wherein at least one of the elements is an abstract entity.

Claim 20. (original) A method as recited in claim 19, wherein an element embodies the attributes of Quality of Service.

Claim 21. (original) A method as recited in claim 19, wherein an element embodies the attributes of security.

Claim 22. (original) A method as recited in claim 1, wherein at least one of the elements is a physical entity.

Claim 23. (original) A method as recited in claim 1, further comprising displaying at least one portion of the matrix.

Claim 24. (original) A method as recited in claim 1, further comprising monitoring at least one portion of the matrix.

Claim 25. (original) A method of claim 1, wherein the matrix is structured such that elements of a row are different from elements of a column.

Claim 26. (original) A method of claim 25, wherein at a least a portion of the connections form a star network.

Claim 27. (original) A method of claim 1, wherein the matrix is structured such that elements on a the row are identical to elements on a column.

Claim 28. (original) A method of claim 27, wherein at a least a portion of the connections form a mesh network.

Claim 29. (original) A method as recited in claim 2, wherein at least another element is a second catalog of sub-elements and the method further comprises the step of forming a sub-matrix of said one element with said another element.

Claim 36. (original) A method as recited in claim 1, further comprising employing a wizard to form at least a subset of the elements.

Claim 31. (original) A method as recited in claim 1, further comprising initializing all connections to a connected state.

Claim 32. (original) A method as recited in claim 1, further comprising employing a wizard to determine which connections to be brought to a connected state.

Claim 33. (original) A method as recited in claim 1, further comprising initializing all connections to a non-connected state.

Claim 34. (original) A method as recited in claim 1, further comprising choosing at least one pair upon which a manipulation is performed.

Claim 35. (original) A method as recited in claim 34, further comprising modifying at least one changeable attribute of the connection.

Claim 36. (original) A method as recited in claim 35, further comprising causing an inheritable change to be inherited by a group of inheritors.

Claim 37. (original) A method as recited in claim 36, wherein a first element is a first gateway, a second element is a second gateway, and the attribute is setting a security policy, and the step of causing causes the security policy to be set at all elements included in the first and second gateway.

Claim 38. (original) A method as recited in claim 36, wherein a first element is a catalog of sub-elements, and the attribute is setting a Quality of Service policy, and the step of causing causes the Quality of Service policy to be set at all sub-elements of the first element.

Claim 39. (original) A method as recited in claim 6, wherein a sub-catalog includes other sub-catalogs.

Claim 40. (original) A method as recited in claim 1, further comprising monitoring at least a portion of a network state in accordance with the representation.

Claim 41. (original) A method as recited in claim 40, further comprising displaying at least a portion of the network state.

Claim 42. (original) A method as recited in claim 41, wherein the step of displaying includes employing color codes for showing attributes.

Claim 43. (original) A method as recited in claim 1, further comprising the step of modeling connections.

Claim 44. (original) A method as recited in claim 41, further comprising indicating changes in performance in response to an occurrence.

Claim 45. (original) A method as recited in claim 1, wherein a least one element of a particular pair is a sub-catalog, the method further comprising expanding elements of the pair into a sub-matrix.

Claims 46 to 87. (withdrawn)

Claim 91. (previously presented) A method for representing on a display a connection representation, the method comprising:

forming at least one catalog of data elements;

creating a matrix of catalog elements for the data elements of at least one of said at least one data catalog;

forming a connection representation between pairs of elements in each said at least one data catalog;

instantiating connections in the connection representation; and

employing the matrix in a network action.

Claim 92. (previously presented) A method as recited in claim 88, wherein the network action includes an action taken from a group of actions including monitoring, problem determination, tuning and modeling.

Claim 93. (previously presented) A method as recited in claim 88, wherein at least one catalog of is a catalog of elements considered for interconnection by themselves.

Claim 94. (previously presented) A method as recited in claim 88, further comprising manipulating catalog elements to create at least one new catalog from a union of existing catalogs.

Claim 95. (previously presented) A method as recited in claim 88, further comprising employing an operation taken from a group of operations consisting of: typing, ordering, adding, moving and deleting to and from one or more catalogs.

Claim 96. (previously presented) A method as recited in claim 92, wherein the operation of typing is a catalog class taken from a group of classes consisting of: Endpoint catalog; Tunnel catalog; Encryption methods catalog; Validity catalog; Action catalog; and Traffic Loading catalog.

Claim 97. (previously presented) A method as recited in claim 92, wherein the operation of typing is a catalog class taken from a group of classes consisting of: Endpoint catalog; Tunnel catalog; Encryption methods catalog; Validity catalog; Action catalog; and Traffic Loading catalog.